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EXAMINER	
MILLER, ROSE MARY	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,156	HARRIS ET AL.	
	Examiner	Art Unit	
	Rose M Miller	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2002 and 20 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31,33-38 and 40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31,33-38 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claim 12 is objected to because of the following informalities: The phrase "whrerin" appears to by a typographical error. Appropriate correction is required.

3. Claims 1-31, 33-38 and 40 are objected to because of the following informalities: The claims are written in a narrative format that is difficult to understand. The claims are also replete with phrases in parenthesis and it is unclear if the material is actually part of the claim or not. Most of the phrases appear to be comments that are inappropriate in a claim as they do not add to the claim in any constructive manner. The claims are also objected to as the phraseology used throughout the claims is not consistent throughout the claims. An example of such is found in the use of both a wave "speed" and a wave "velocity". One of ordinary skill in the art could be confused as to that which Applicant truly wishes to claim by misinterpret the claims as measuring two different variables. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 3-4 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification fails to provide support for the measurement of such frequencies as f_{05}, $2f_{05}$, and $3f_{05}$. The originally filed specification only provides support for measuring the fundamental frequency f_o and its harmonics $2f_o$ and $3f_o$. For the purposes of applying prior art, the claims have been treated as if the frequencies recited were the fundamental frequency f_o and its harmonics $2f_o$ and $3f_o$.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

7. Claims 1-28, 30-31, 33-35, 38, and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected as being indefinite. Claim 1 recites "processing means to derive using an echo or echoes received by said sensing means". However, claim 1 also recites the sensing means being "capable of being placed in contact with or in close proximity to a long end to detect the impulse and echoes thereof resulting from a striking of the other or that same log end". If the sensing means is on the end opposite the striking end, how does it receive "an echo or echoes" for processing? The specification clearly indicates the sensing means would not receive "an echo" if the striking means was on the opposite end of the log but would rather use the stress wave or acoustic wave transmitted directly through the log without the wave being reflected to produce the "echo". This confusion results from the narrative format that the claims are now found in. The claims should be carefully rewritten to conform to current US practice. Claims 2-31, 35, and 38 are rejected as they fail to correct the problems presented in claim 1 from which they depend.

Claim 3 is rejected as being indefinite as the phrases "the characteristic frequencies" and "the speed V" lack proper antecedent basis in claim 1 from

which claim 3 depends. Claim 1 recites a single fundamental frequency. There is no indication of more than one characteristic frequency being measured. And there clearly is no indication of measuring the "speed" in claim 1. The first recitation of measuring the wave speed is found in claim 2. Claim 4 is rejected as it fails to correct the problems of claim 3 from which it depends.

Claim 5 is rejected as being indefinite and confusing. As with claim 3, claim 5 is referring to "natural resonance frequencies" whereas claim 1, from which claim 5 depends, measures only a single "fundamental frequency". It is unclear where the multiple "natural resonance frequencies" are measured or processed.

Claim 6 is rejected as being indefinite. While Applicant has defined the legends f_o and f_n, Applicant has failed to define the variables n and k found in the recited equation. Claim 7 is rejected as it fails to correct the problems presented in claim 6.

Claim 8 is rejected as being indefinite and confusing. How can the equation recited in claim 8 be used when it is not the same equation as that cited in claim 6? Or are the equations derivable one from the other? Which equation is to be used? As with claim 6, Applicant has failed to define the variables n and k used in the equation.

Claim 11 is rejected as being indefinite. Claim 1, from which claim 11 depends, fails to recite determining "the velocity" of the wave. Therefore, claim 1 fails to provide the antecedent basis necessary for the phrase "the velocity" found in claim 11. Claim 1 also fails to provide support for the recited "spectral peak series" recited in claim 11.

Claim 12 is rejected as being indefinite as it fails to define what "V" stands for. Is this the plane wave velocity mentioned in claim 2 or the shear wave velocity or the longitudinal speed of the wave in the log? What function of V is claimed? Any and all functions? Claims 13 and 14 fail to correct the problems found in claim 12.

Claim 31 is rejected as being indefinite and incomplete. Claim 31 is a method that fails to put forth positive method steps. Therefore, the metes and bounds of the claim are not determinable at this time. Claims 38 and 40 fail to correct the problems of claim 31 from which they depend.

Claim 33 is rejected as being indefinite. The reference to the "previously defined apparatus", as found in lines 4-5 of claim 33, is indefinite as it fails to positively recite the limitations being relied upon in the "apparatus" being used. Further confusion arises that is similar to that of claim 1. How can "echo or echoes" be used in the processing step if no "echo" is received? The claim is further replete with lack of antecedent basis as it refers to elements of the "apparatus" using such phrases as "said processing means" and "said display means" without first setting forth the apparatus elements. Claim 34 is rejected as it fails to correct the problems of claim 33 from which it depends.

Claim 35 is rejected as being indefinite and incomplete. Claim 35 is a method that fails to put forth positive method steps. Therefore, the metes and bounds of the claim are not determinable at this time.

Claim 40 is dependent from cancelled claim 32. Therefore, there is no way to determine the metes and bounds of the claimed invention at this time.

The majority of the problems presented in Applicant's claims are the result of the claims being presented in a format which is not consistent with current US practice. A suggestion for correction is to rewrite the claims in their entirety to be consistent with current US practice.

8. Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 2 is rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. The equation recited in claim 2 to determine the velocity or speed of the wave traveling through the log is incorrect. The correct equation is that found in claim 13. The equation recited in claim 2 is also found in the specification at page 2, line 22. As best can be determined, the remainder of the specification utilizes the correct equation when determining the speed of the wave traveling through the log. However the specification should be checked to insure the proper equation is being used.

11. For the purposes of applying prior art, claim 2 has been treated as if the correct equation was found in claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> Or (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> Or (f) he did not himself invent the subject matter sought to be patented.
>
> Or (g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

13. Claims 1-7, 9-28, 30-31, and 33-38 are rejected under 35 U.S.C. 102(a) and 35 U.S.C. 102(g) as being anticipated by **Andrews et al. (WO 00/36413)**.

Andrews et al. discloses an apparatus for providing an indicator of the stiffness of a log comprising sensing means (see Figures 5 and 6), processing means (21), and display means (22) wherein said processing means tests algorithmically frequency transformed data (see page 13 lines 19-24) derived from time based echo data (see page 13 lines 19-24) with a view to deriving a measure or good estimate of fundamental frequency f_o (see page 13 lines 25-27), wherein L is entered into said processing means (see page 14 lines 6-8) and wherein said processing means derives said indicator by reference to both f_o and L (see page 13 line 25 - page 14 line 2 and page 14 lines 18-30).

With regards to claim 2, **Andrews et al.** discloses said processing means testing all spectral peaks of the echo data for membership of a series from which a best value of f_o can be derived and related to the plane wave speed V and specimen length L by $V=2Lf_o$ rather than by reliance on the identification of any single resonance peak (see page 18 lines 1-27).

With regards to claims 3 and 4, **Andrews et al.** discloses said processing means recognizing that the characteristic frequencies may be shifted from a harmonic series and recognizes that a better indication of the fundamental frequency is obtained from higher harmonics (see page 19 lines 5-9 and page 19 line 24 - page 20 line 9) and said processing means recognizes that a better indication of the fundamental frequency f_o than an attempted direct measure of f_o itself is from at least the second harmonic (see page 19 lines 5-9).

With regards to claim 5, **Andrews et al.** discloses wherein said processing means recognizes that whilst the natural resonance frequencies of stems and logs may be far from harmonic they may be transformed to a harmonic series by applying a correction which decreases as the harmonic number increases (see page 19 line 24 - page 20 line 24).

With regards to claims 6 and 7, **Andrews et al.** discloses wherein said processing means can transform observed series of resonant frequencies f_n into multiples of a "true" fundamental frequency f_o from which a plane wave velocity can be derived by reliance upon the relationship $(f_n - nf_o)/f_n = ke^{-n}$ (see page 19

line 24 - page 20 line 13). It would have been inherent in the system of **Andrews et al.** to have the fractional deviation fall in geometric progression with a ratio of approximately 2.7 as one of ordinary skill in the art would have known that such a ratio would produce a frequency of f_o sufficiently close to the actual frequency f_o that the measurement of the stiffness of the log would not be affected or corrupted.

With regards to claim 9, **Andrews et al.** discloses wherein said processing means discriminates against noise spikes in the spectra, peaks from unwanted modes inadvertently excited, or any other signals which differ from the spectral peaks sought and which have the desired relationship by using a comb filter comprising a number of frequencies which match the sought relationship, which can themselves be harmonic or have some other relationship, the comb filter having passbands wide enough to allow small deviations about each centre frequency, forming the sum of the products of the actual spectral peaks and the comb filter, and identifying as the sequence or filter which accounts for most spectral power, and, where necessary, deciding between two filters which produce equal power sums on the basis of the comb which produces the least frequency offset between the actual spectral peaks and the filter centre frequencies (see page 18 line 19 - page 19 line 15).

With regards to claim 10, **Andrews et al.** discloses wherein said processing means uses such transforms to convert a harmonic series with a defined base frequency f_o to a non-harmonic series, thereby defining the centre frequencies of a comb filter with which the actual series may be compared, without the need for all members of the actual series to be present (see page 20 lines 18-29).

With regards to claim 11, **Andrews et al.** discloses wherein said processing means can calculate a confidence number to be displayed by said display means to indicate the likelihood that the indicated velocity is correct or whether a re-measure is advisable based on the amount of power in the spectral

peak series identified with a base value of f_o compared with spectral power not accounted for (see page 19 lines 10-15).

With regards to claims 12, 13 and 14, **Andrews et al.** discloses said indicator is V or V^2 or a function of V or a function of V^2 where V is derived from the function $V=2Lf_o$ (see page 14 lines 18-30) and wherein said display means displays V or an indicator or indicators of the one or more properties being assessed, such as MOE or an approximation of MOE (see page 14 lines 18-30).

With regards to claim 15, **Andrews et al.** clearly discloses said processing means includes amplification means to ensure a sufficient gain to ensuing echoes in use (see Figure 6).

With regards to claim 16, **Andrews et al.** clearly discloses said sensing means being adapted to be place in contact with a log end (see Figures 1 and 5).

With regards to claim 17, **Andrews et al.** clearly discloses said sensing means carrying a switch for said processing means conducive of good log/sensing means contact (switch 11, see page 10 line 20 - page 11 line 15).

With regards to claims 18, 19, and 20, **Andrews et al.** clearly discloses said sensing means is compliantly mounted by a sensing head to be physically pressed by a user against the log surface to be tested (see Figure 5 and page 10 line 20 - page 11 line 10), wherein the compliant mounting of said sensing means within the sensing head is compliantly mounted by use of silicone rubber (pad 13), and wherein said sensing means is in a sensing head connected by flexible means to apparatus carrying said processing means and said display means (see page 10 lines 23-25, and Figure 6).

With regards to claim 21, **Andrews et al.** clearly discloses said sensing means including a piezo-style accelerometer (8, see page 10 line 21).

With regards to claim 22, **Andrews et al.** clearly discloses said processing means having analog signal acquisition means, means for digitization and processing into a characteristic spectrum of the acquired analog signal data of the echoes and further software algorithms to interpret the data (see page 12 line 8 to page 14 line 16).

With regards to claim 23, **Andrews et al.** clearly discloses with a view to power saving, said display means is small low power display (22, see page 13 lines 25-27 and page 14 lines 9-16).

With regards to claim 24, **Andrews et al.** clearly discloses said sensing means being in a sensing head capable of one handed manipulation by user and whereby the apparatus is adapted to minimize power consumption by allowing initiation of the measurement sequence by finger pressure on a push switch immediately prior to the striking of a log to be tested, such pressure on such a push switch encouraging positive contact between the head and the log surface (see page 10 line 20 - page 11 line 15).

With regards to claim 25, **Andrews et al.** clearly discloses said processing means being adapted to threshold the signal from said sensing means and immediately to apply an exponentially increasing amplification of the signal to compensate for absorption of the signal in the log so increasing the time over which acoustic signals can be usefully digitalized and to increase spectral resolution (see page 13 lines 14-18).

With regards to claim 26, **Andrews et al.** clearly discloses power consumption being adapted to be minimized by allowing operation under the control of PLDs which remain in low current mode until enabled by an initiation switch after which there is a powering up, at least as needed, of analogue functions of said processing means with respect to signal acquisition, powering up and analysis of such signals and a sending results to the display means before being subsequently powered down after a time period or time periods (see page 13 line 7 - page 14 line 16).

With regards to claims 27 and 28, **Andrews et al.** clearly discloses providing a keyboard through which data entries can be made into said processing means (23, see page 14 lines 6-9) including such information as log length.

With regards to claims 30, **Andrews et al.** clearly discloses said sensing means being adapted to be placed at or in close proximity to the same log end as that to be struck to provide said impulse (see Figure 1).

With regards to claims 31, 35 and 38, **Andrews et al.** clearly discloses a method of providing as indicator of or from which stiffness, fibre characteristics or other properties can be estimated (see the rejection of claim 1 above) and wherein the end that is struck is also the end at which the testing is performed (see Figure 1).

With regards to claim 33, **Andrews et al.** clearly discloses a method of providing an indicator of or from which stiffness, fibre characteristics, or other properties can be estimated for a felled log of known or measurable length L, said method comprising or including the steps of striking an end of the felled log whilst having sensing means of the previously defined apparatus in contact with or in close proximity to a log end to detect at least one echo of the impulse resulting from the striking of that same or the other log end, processing the output of at least said sensing means in said processing means to derive, using an echo or echoes sensed by said sensing means, said indicator, and displaying on or by said display means said indicator or any derivative thereof received from said processing means, optionally thereafter appropriately marking or otherwise indicating the fate of the log on the basis of the displayed indicator, said process being further characterized in that said processing means tests frequency transformed data derived from time based echo data with a view to deriving a measure or good estimate of fundamental frequency fo, L, is or can be entered into said processing means, and said processing means derives said indicator by reference to both f_o and L (see the rejection of claim 1 above).

With regards to claim 34, **Andrews et al.** clearly discloses said indicator being an estimation of MOE (see page 9 lines 7-21).

With regards to claims 36 and 37, **Andrews et al.** clearly discloses a method of generating and displaying an indicator of stiffness or fibre characteristics of wood within an elongate wooden structure which comprises (i)

presenting an accelerometer based sensing means compliantly to an end of the elongate wooden structure, (ii) impacting that said end of the structure so as to generate an impulse capable of reflection from the other end thereof, (iii) passing the analogue signal detected by said compliant sensing means to a processing means, (iv) processing the input data in said processing means to generate said indicator, and (v) passing to the display means the generated indicator from said processing means for display, wherein the architecture of the apparatus is such that said sensing means is a sensing head in which said accelerometer is compliantly mounted and is connected by a flexible link to a housing carrying said processing means and said display means (see the rejections of claims 1 and 18-21 above).

With regards to claim 37, **Andrews et al.** also clearly discloses said sensing; head having a switch capable of being initiated by applying pressure which is conducive to compliant contact of said accelerometer with the end of said wooden structure (see the rejection of claim 17 above).

14. Claims 1-7, 9-28, 30-31, and 33-38 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. **Andrews et al.** clearly discloses Applicant's claimed invention while reciting inventors which are not part of the inventive entity of the present Application.

15. Claims 1, 3-4, 12-15, 22, 30-31, 33-35, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by **Tomohiro et al. (JP 11-064306)**.

Tomohiro et al. discloses an apparatus for providing an indicator of the stiffness of a log comprising sensing means (see 42 in Figure 6), processing means (108), and display means (inherent in use of computer/processing means 108) wherein said processing means (108) tests algorithmically frequency transformed data derived from time based echo data with a view to deriving a measure or good estimate of fundamental frequency f_o (see abstract), wherein L is entered into said processing means (either entered or measured) and wherein

said processing means derives said indicator by reference to both f_o and L (see abstract).

With regards to claims 3 and 4, **Tomohiro et al.** discloses said processing means recognizing that the characteristic frequencies may be shifted from a harmonic series and recognizes that a better indication of the fundamental frequency is obtained from higher harmonics (uses 2nd or 3rd harmonic) and said processing means recognizes that a better indication of the fundamental frequency f_o than an attempted direct measure of f_o itself is from at least the second harmonic (uses the 3rd harmonic or tertiary resonant frequency).

With regards to claims 12, 13 and 14, **Tomohiro et al.** discloses said indicator is V or V^2 or a function of V or a function of V^2 where V is derived from the function $V=2Lf_o$ (Young's modulus calculated) and wherein said display means displays V or an indicator or indicators of the one or more properties being assessed, such as MOE or an approximation of MOE (Young's modulus).

With regards to claim 22, **Tomohiro et al.** clearly discloses said processing means having analog signal acquisition means, means for digitization and processing into a characteristic spectrum of the acquired analog signal data of the echoes and further software algorithms to interpret the data (inherent in the use of microphone pickup and a computer processing means).

With regards to claims 30, **Tomohiro et al.** clearly discloses said sensing means being adapted to be placed at or in close proximity to the same log end as that to be struck to provide said impulse (see Figure 6).

With regards to claims 31, 35 and 38, **Tomohiro et al.** clearly discloses a method of providing as indicator of or from which stiffness, fibre characteristics or other properties can be estimated (see the rejection of claim 1 above) and wherein the end that is struck is also the end at which the testing is performed (see Figure 6).

With regards to claim 33, **Tomohiro et al.** clearly discloses a method of providing an indicator of or from which stiffness, fibre characteristics, or other properties can be estimated for a felled log of known or measurable length L,

said method comprising or including the steps of striking an end of the felled log whilst having sensing means of the previously defined apparatus in contact with or in close proximity to a log end to detect at least one echo of the impulse resulting from the striking of that same or the other log end, processing the output of at least said sensing means in said processing means to derive, using an echo or echoes sensed by said sensing means, said indicator, and displaying on or by said display means said indicator or any derivative thereof received from said processing means, optionally thereafter appropriately marking or otherwise indicating the fate of the log on the basis of the displayed indicator, said process being further characterized in that said processing means tests frequency transformed data derived from time based echo data with a view to deriving a measure or good estimate of fundamental frequency fo, L, is or can be entered into said processing means, and said processing means derives said indicator by reference to both f_o and L (see the rejection of claim 1 above).

With regards to claim 34, **Tomohiro et al.** clearly discloses said indicator being an estimation of MOE (Young's modulus).

16. Claims 1, 12-16, 18, 22, 30-31, 35, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by **Kawanaka (WO 00/36413)**.

Kawanaka discloses an apparatus for providing an indicator of the stiffness of a log comprising sensing means (see Figures 1-3), processing means (43), and display means (13) wherein said processing means tests algorithmically frequency transformed data (see abstract) derived from time based echo data (inherent in analog signal) with a view to deriving a measure or good estimate of fundamental frequency f_o (see abstract), wherein L is entered into said processing means (15, 16, see abstract) and wherein said processing means derives said indicator by reference to both f_o and L (inherent in determining Young's modulus).

With regards to claims 12, 13 and 14, **Kawanaka** discloses said indicator is V or V^2 or a function of V or a function of V^2 where V is derived from the function $V=2Lf_o$ (inherent in determining Young's modulus) and wherein said display means displays V or an indicator or indicators of the one or more properties being assessed, such as MOE or an approximation of MOE (Young's modulus).

With regards to claim 15, **Kawanaka** clearly discloses said processing means includes amplification means to ensure a sufficient gain to ensuing echoes in use (41 in Figure 2).

With regards to claim 16, **Kawanaka** clearly discloses said sensing means being adapted to be place in contact with a log end (see Figures 1 and 3).

With regards to claims 18, **Kawanaka** clearly discloses said sensing means is compliantly mounted by a sensing head to be physically pressed by a user against the log surface to be tested (see Figures 1 and 3).

With regards to claim 22, **Kawanaka** clearly discloses said processing means having analog signal acquisition means, means for digitization and processing into a characteristic spectrum of the acquired analog signal data of the echoes and further software algorithms to interpret the data (see abstract).

With regards to claims 30, **Kawanaka** clearly discloses said sensing means being adapted to be placed at or in close proximity to the same log end as that to be struck to provide said impulse (see Figure 3).

With regards to claims 31, 35 and 38, **Kawanaka** clearly discloses a method of providing as indicator of or from which stiffness, fibre characteristics or other properties can be estimated (see the rejection of claim 1 above) and wherein the end that is struck is also the end at which the testing is performed (see Figure 3).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Heath et al. (US 3,531,9863) teaches testing of a pole by measuring the ratio of high frequency to low frequency of sonic waves transmitted through the pole.

Dunlop (US 4,399,701) teaches a method and means for detecting decay in wood.

Pope, deceased, et al. (US 4,852,029) teaches an automated material classification apparatus and method for grading pre-cut lumber.

Hosgood et al. (US 4,858,469) discloses a method and apparatus for testing timbers for disconformities or decay.

Mack (US 5,097,881) discloses an ultrasonic log grading system.

Andrews et al. (WO 01/77669 A1) discloses a method of estimating timber stiffness profiles using plane compression waves propagating in the timber.

Larsson et al. (US 6,347,542 B1) discloses a method and arrangement for non-destructive determination of the properties of an object, particularly a wooden object.

Hawkins (WO 02/29398 A1) discloses an apparatus for non-destructive testing of fibrous members.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M Miller whose telephone number is 703-305-4923. The examiner can normally be reached on Monday - Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 703-305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

RMM
June 27, 2003

HELEN KWOK
PRIMARY EXAMINER